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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/617,596

07/07/2000

Grant McGibney

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12/30/2004

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EXAMINER

WONG, BLANCHE

ART UNIT

PAPER NUMBER

2667

DATE MAILED: 12/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/617,596

Applicant(s)

MCGIBNEY, GRANT

Examiner

Blanche Wong

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-16 is/are allowed.
- 6) ☒ Claim(s) 1,5 and 6 is/are rejected.
- 7) ☒ Claim(s) 2-4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on February 6, 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Cupo et al. (U.S. Pat No. 6,377,566).

With regard to claim 1, Cupo discloses a communication method (methods of transmitting col. 3, ln. 19 and receiving col. 3, ln. 29 using OFDM) comprising the steps of:

receiving an information bearing OFDM signal at a receiver 130 (Fig. 1B, col. 3, ln. 65), where the information bearing OFDM signal (OFDM transmission system, col. 3, ln. 63) is carried by each sub-carrier of a set of sub-carriers (OFDM subcarriers, col. 4, ln. 9) allocated to the receiver;

constructively combining (reshuffles the contiguous symbol stream, col. 4, ln. 21-22) the sub-carriers at the receiver to produce a combined signal (into a non-contiguously assigned symbol stream, col. 4, ln. 23-24); and

extracting the information (with respect to the symbols from the particular DAB services or programs, col. 4, ln. 25-26) from the combined signal.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cupo (U.S. Pat No. 6,377,566) in view of Zimmermann et al. (U.S. Pat No. 6,522,700).

With regard to claim 5, Cupo discloses the communication method of claim 1. However, the combination fails to show expressly transmitting the information bearing OFDM signal from a transmitter to a receiver, wherein in transmitting the information bearing OFDM signal comprises phase rotating the sub-carriers so that the sub-carriers add constructively at the receiver, as recited in claim 5.

In an analogous art, Zimmermann discloses transmitting the information bearing OFDM signal 110 (OFDM signal generator) from a transmitter 10 (transmitter) to a receiver, wherein in transmitting the information bearing OFDM signal comprises phase rotating 90 (frequency interleaver)(col. 2, ln. 22-34; col. 5, ln. 25-53) the sub-carriers (col. 3, ln. 60-62; col. 4, ln. 8-10) so that the sub-carriers add constructively at the receiver, as recited in claim 5.

A person of ordinary skill in the art would have been motivated to employ Zimmermann in the combination of AT&T and Cupo in order to obtain an OFDM transmitter with phase rotating that can combine with an OFDM receiver. The suggestion/motivation to do so would have been to further develop the existing DAB transmission system for added-value services. Zimmermann, col. 1, ln. 38-42. At the

time the invention was made, therefore, it would have been obvious to one of ordinary skill in the art to which the invention pertains to combine Cupo and Zimmermann to obtain the invention as specified in claim 5.

With regard to claim 6, Zimmermann further discloses each subcarrier is associated with a corresponding channel 30 (channel encoder)(col. 2, ln. 1-2), and each corresponding channel has a gain (col. 4, ln. 8-34, data substreams can be of different lengths), and the gain of each corresponding channel has a magnitude 32,34,36 (convolution encoders)(col. 4, ln. 31-32, each convolution encoder generate one encoded data substream), and in which transmitting the information bearing OFDM signal further comprise weighting each sub-carrier 60 (downstream time interleaver) with the magnitude of the channel corresponding to the sub-carrier.

Allowable Subject Matter

5. Claims 7-16 are allowed.
6. Claim 2-4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed August 4, 2004 have been fully considered but they are not persuasive.

Applicant argues that there is "some confusion" between what Cupo calls reshuffling and what Applicant defines as combining sub-carriers. Response to Office Action, p.1. With regard to claim 1, ln. 5, "constructively combining the sub-carriers" is not structurally defined in the limitations of this claim and thus "constructively combining" can be reshuffling where the reshuffling constructively produce a non-contiguously assigned symbol stream, col. 4, ln. 23-24, by combining groups of contiguous OFDM subcarriers, 1 to N1, N1+1 to N1+N2, and N1+N2+1 to N1+N2+N3, col. 2, ln. 14-26. With regard to claim 2, ln. 2, "combining the sub-carriers" in the preamble of this claim, is not further recited in the limitations of this claim.

Furthermore, Applicant argues that "each sub-carrier in Cupo's system carries a different OFDM symbol, whereas Applicant puts the same information into more than one sub-carrier, "as claimed in Claim 1." Response to Office Action, p.2. "[W]here information in the information bearing OFDM signal is carried by each sub-carrier of a set of sub-carriers" says that the sub-carriers are carry OFDM signal/information, but there is no indication that the information has to be the same.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 571-272-

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3177. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RW

BW

December 14, 2004

Chau T. Nguyen

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